

# viti-notes

## [pests and diseases]



Research to Practice

### Monitoring lightbrown apple moth

#### Viti-note Summary:

- Monitoring tips
- Monitoring moths
- Monitoring for egg masses
- Monitoring for caterpillars

Damage from lightbrown apple moth (LBAM) can vary markedly from year to year, making a basic monitoring program essential in many grape growing regions for cost-effective management. The main concern with LBAM is its association with Botrytis bunch rot which causes extensive damage to grapes in some regions and seasons, though large numbers of the caterpillars in harvested bunches can also cause contamination problems.

#### Monitoring tips

Systematic monitoring and good record keeping provides useful historical data for comparing between seasons and will help refine LBAM management strategies.

Target your effort to establish whether there is a potential problem:

- Search first in susceptible varieties.
- Search edges of vineyard near weeds or trees.

**REMEMBER: TARGETED MONITORING IS NOT REPRESENTATIVE OF THE WHOLE BLOCK AND FURTHER SAMPLING IS ESSENTIAL IF DECIDING WHETHER TO SPRAY OR NOT**

#### Monitoring moths

Adult moths can be trapped using pheromone traps and port lures. While trap catches do not generally reflect the potential larval population and the need for control, they can provide a useful reminder to monitor for other stages of the pest.

#### Other topics in this Viti-Notes series include:

- Characteristics of lightbrown apple moth
- *Monitoring lightbrown apple moth*
- Managing lightbrown apple moth

#### Monitoring for egg masses

Eggs are most commonly laid on the upper surfaces of expanded grapevine leaves. When egg masses are found, they should be marked so that they can be located easily again to check on their progress\*. (Figure 1.)

**\*ONLY EGG MASSES WHICH ARE GREEN OR GREEN/BLUE, OR YELLOW WITH A BLACK SPOT ARE Viable AND NEED TO BE MONITORED. EGG MASSES WHICH ARE BLACK ALL OVER HAVE BEEN PARASITISED AND WILL HATCH WASPS NOT CATERPILLARS. WHITE OR CLEAR EGG MASSES HAVE ALREADY HATCHED AND DO NOT NEED TO BE MONITORED.**

- In spring, look on vine leaves near the base of shoots (when they are laid on partially expanded leaves in the spring they often detach and dry out as the leaf grows).
- In summer, inspect vine leaves in the middle of the shoot.
- In autumn, eggs can be found both in vines and on broad-leaf weeds such as capeweed and dock, or on cover crops, such as clover and medic.

# Monitoring lightbrown apple moth

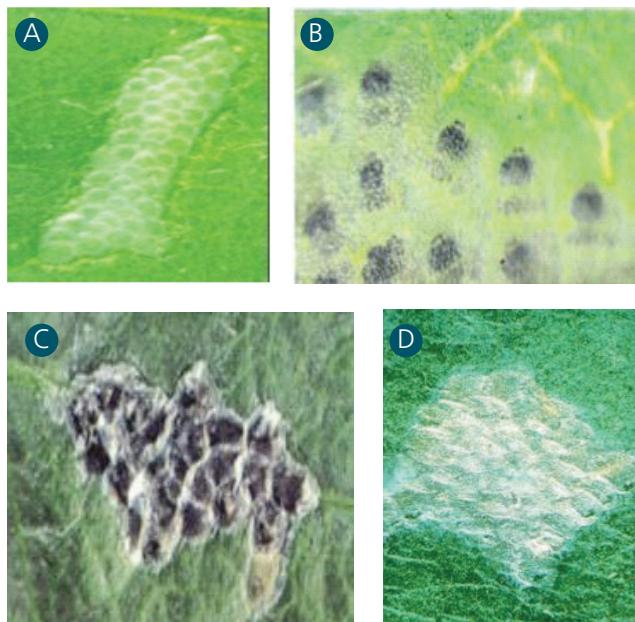


Figure 1. Egg masses

- Ⓐ Freshly laid egg mass;
- Ⓑ Eggs nearly ready to hatch (the caterpillar heads can be seen with a x10 hand lens);
- Ⓒ Egg mass parasitised by *Trichogramma* wasp (black);
- Ⓓ Hatched egg mass (transparent).

## Monitoring for caterpillars

After each egg lay, monitoring of the egg masses will indicate when caterpillars are ready to emerge.

Look for young caterpillars (~2 mm long):

- On the undersides of leaves along leaf veins at the tips of shoots;
- At nodes; and
- Within bunches, often between the stem and the berry.

As caterpillars grow they construct webbing shelters and leaf rolls, often webbing together a number of leaves and potentially later in the season infesting whole bunches.

Look for older, larger caterpillars:

- Next to veins on the underside of expanding leaves;
- Just below the shoot tip; and
- In developing inflorescences and bunches. Young caterpillars hatched in the summer generation might also move immediately into bunches.

The autumn generation of caterpillars can survive over winter in vines or other host plants.

Look for over wintering caterpillars:

- In bunch residues on vines;
- On broad leaf weeds and suitable cover crop plants between rows and under vines; and
- In native bush or other vegetation adjacent to the vineyard.

In late winter/early spring, some of these older caterpillars may move onto new vine growth at budburst.



Figure 2. Caterpillars

- Ⓐ Small 2nd instar caterpillar;
- Ⓑ LBAM larva can be found on broad leaf weeds;
- Ⓒ Older larva and webbing in bunch residue.

Table 1 LBAM management checklist

Monitor strategically for LBAM egg masses and larvae.
Monitor other LBAM host plants in and adjacent to the vineyard to assess potential contribution to LBAM problem.
Train vineyard employees to monitor for LBAM while working in the vineyard.
Record presence of beneficial insects.
Keep records of monitoring results and controls applied.
Monitor for larvae after controls applied to assess effectiveness of treatments.

## Acknowledgement

The Australian Wine Research Institute would like to acknowledge:

- Cooperative Research Centre for Viticulture (CRCV) and all involved in the VitiNotes series (1996 - 2006).

## Further information

### Training

For regional specific training in pest and disease control, the AWRI is running Research to Practice: Integrated Pest Management for changing viticultural environments.

### Contact

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## Agrochemical information

Agrochemicals registered for use in Australian Viticulture - updated annually.

Visit [www.awri.com.au](http://www.awri.com.au) for the latest version.

## Useful references

Nicholas, P., Magarey, P.A. and Wachtel, M. (Eds.) 1994 Diseases and pests, Grape Production Series 1, Hyde Park Press, Adelaide (a glove box edition of this book is also available).

For images of grapevine symptoms visit [www.winetitles.com/diagnosis/index.asp](http://www.winetitles.com/diagnosis/index.asp).

Product or service information is provided to inform the viticulture sector about available resources and should not be interpreted as an endorsement.



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